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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/539,634	12/09/2005	Leon Carlock	28928.0010	6748

30827 7590 02/05/2007

MCKENNA LONG & ALDRIDGE LLP
1900 K STREET, NW
WASHINGTON, DC 20006

EXAMINER	
WANG, CHANG YU	
ART UNIT	**PAPER NUMBER**
1649	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/05/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/539,634	CARLOCK ET AL.	
	Examiner	Art Unit	
	Chang-Yu Wang	1649	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 November 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-4,7-16,18-44 and 46-60* is/are pending in the application.

4a) Of the above claim(s) *5,9-16,18-40,42 and 46-60* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4,7,8 and 41* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *6/16/05* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Status of Application Election/Restrictions

Applicant's election with traverse of Group I, SEQ ID NOs: 6 and 12 in the reply filed on Nov 3, 2006 is acknowledged. The traversal is on the ground(s) that certain sequences should be grouped together and certain claims should not be grouped in part in different groups. Applicant argues that SEQ ID NOs: 5, 9, 11 should be grouped together because SEQ ID NO:.9 is the optimized sequence of SEQ ID NO:5 (encoding PIRP-M) and SEQ ID NO:11 is the DNA sequence of SEQ ID NO:9 containing an addition sequence of His-tag. Applicant argues that SEQ ID NOs: 7, 13,15 should be grouped together because SEQ ID NO:13 is the optimized sequence of SEQ ID NO:7 (encoding PIRP-L) and SEQ ID NO:15 is the sequence of SEQ ID NO:13 containing an additional sequence of His-tag. In addition, Applicant argues that the methods of using different polypeptides and the methods of using cells expressing corresponding polynucleotides should be grouped together because the results would be the same. Applicant also argues that the restriction on claims 50, 51 and 56 should include these claims in full. With respect to the arguments that different sequences should be grouped together and claims 50, 51 and 56 should be included these claims in full, it is found persuasive. Thus, SEQ ID NOs: 5, 9, 11 would be grouped together and SEQ ID NOs: 7, 13, 15 would be grouped together and claims 50, 51 and 56 would be included in full.

The linking claims 1-3, 7 and 41, which link Inventions I-III, will be examined together with the selected group I (claims 4 and 8). Since the linking claims are not

allowable, the claims linked to the linking claims will be withdrawn from further consideration because the restriction of the claims linked to the linking claims are subject to the non-allowability of the linking claims. The claims linked to the linking claims will only be considered when the linking claims are found allowable.

The requirement for the rest of restriction is still deemed proper and is therefore made FINAL.

Claims 1-4, 7-16, 18-44, 46-60 are pending. Claims 6, 17, 45 are canceled. Claims 5, 9-16, 18-40, 42, 46-60 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to nonelected inventions, there being no allowable generic or linking claim. Claims 1-4, 7, 8, 41 under examination in this office action.

Information Disclosure Statement

The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609.04(a) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

Specification

The disclosure is objected to because of the following informalities: the sequences listed on p. 16, 21 need sequence identifiers. In addition, typographical error of apoptosisresults on p. 11 (line 15) and an extra "t" in line 27. Appropriate correction is required.

The disclosure is objected to because it contains an embedded hyperlink and/or other form of browser-executable code (see p. 29 and 73). Applicant is required to delete the embedded hyperlink and/or other form of browser-executable code. See MPEP § 608.01.

Claim Objections

Claim 3 is objected to as encompassing non-elected sequences.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-2, and 41 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a polypeptide consisting of SEQ ID NOs: 6 and 12 or the fragment of PLP consisting of residues 215-232, does not reasonably provide enablement for an isolated polypeptide that is a fragment of PLP corresponding to all parts of a wild type PLP sequence or all mutant sequences thereof as broadly

claimed. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to use the invention commensurate in the scope with these claims.

"There are many factors to be considered when determining whether there is sufficient evidence to support a determination that a disclosure does not satisfy the enablement requirement and whether any necessary experimentation is 'undue'. These factors include, but are not limited to:

(A) The breadth of the claims;

(B) The nature of the invention;

(C) The state of the prior art;

(D) The level of one of ordinary skill;

(E) The level of predictability in the art;

(F) The amount of direction provided by the inventor;

(G) The existence of working examples; and

(H) The quantity of experimentation needed to make or use the invention based on the content of the disclosure.

In re Wands, 858 F.2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988)". See MPEP § 2164.01.

Claims 1-2, and 41 are drawn to an isolated polypeptide that is a fragment of PLP having the sequence corresponding to a part of wild type PLP or a mutant sequence thereof and is encoded by an mRNA having an IRES. Applicant teaches that several PLP isoforms have been identified and these isoforms could be due to

proteolysis of the PLP and alternative splicing. Applicant identifies two translation initiation sites (IRES) on the wild type of PLP, which starts at position aa 205 or aa 276 of PLP (or aa 170 or 199 of DM20). Applicant proposes that these two IRESs generate two potential PLP isoforms, PIRP-M (aa 170-241) and PIRP-L(aa 199-241). Based on the prior art and specification, Applicant is enabled for an isolated polypeptide consisting of SEQ ID NOs: 6 and 12 and the fragment of aa 215-232 of PLP since aa 215-232 of PLP has been shown to be an active domain of PLP in stimulating neuronal activity and meylination. However, the claims are not limited to the polypeptides as set forth above. Applicant describes different variants and homologues of PLP as

"'variant' of the reference polypeptide refers to a molecule substantially identical to either the full protein or to a fragment thereof in which one or more amino acid residues have been replaced (substitution variant) or which has one or several residues deleted (deletion variant) or added (addition variant). A 'fragment' refers to any subset of the molecule that is, a shorter polypeptide of, for example, SEQ ID NO:6 or SEW ID NO:8...."a homologue of the PIRP polypeptide described above is characterized as having (a) functional activity of native polypeptide, and (b) sequence similarity to a native polypeptide (such as SEQ ID NO:6 or SEQ ID NO:8, when determined above, of at least about 30% (at the amino acid level), preferably at least about 50%, more preferably at least about 70%, even more preferably at least about 90%."

on p. 28-30 and describes several possibilities of amino acid substitution/modification on p. 31. However, the specification fails to provide sufficient guidance as to how to make and use these claimed polypeptides. The specification does not provide sufficient guidance as to what other amino acids could be included/not included in the claimed polypeptides to maintain any structural or functional activity or specificity like PLP. Applicant fails to provide sufficient guidance as to what other common regions are required for the polypeptides with limited homology in order to preserve the functional activity as PLP or the active domain of PLP. There is no guidance as to what other

amino acid sequences could/could not be changed to preserve any common characteristics of PLP or SEQ ID NOs: 6 and 12. It is known in the art that a change of an amino acid in an amino acid sequence can change the protein conformation, which consequently changes the binding ability of the polypeptide/peptide to its binding partner or receptors. For example, a substitution of lysine residue by glutamic acid at position 118 of acidic fibroblast growth factor results in a substantial loss of its biological activity including the binding ability to heparin and its receptor (Burgess et al. J of Cell Bio. 1990. 111:2129-2138). It is also known in the art that in addition to a core determinant sequence, the protein-protein interaction also relies on the flanking or noncontiguous residues (see p. 445 the second column, first paragraph, Pawson et al. 2003, Science 300:445-452). The optimal binding motif for a domain is not necessarily suitable for physiological or in vivo interaction. The predictive data always need to be validated by actual analyses in cells (see p. 445, the third column, second paragraph, Pawson et al. 2003, Science 300:445-452). Applicant fails to provide guidance as to what functional regions of the claimed polypeptides are. A skilled artisan cannot predict the function/activity of these claimed polypeptides. Thus it is unpredictable whether all the claimed polypeptides could have any particular activity.

Claim 41 recites a pharmaceutical composition. It is known in the art that PLP is critical for myelin development and PLP has been shown to enhance neuronal survival and neural stem cell proliferation and differentiation. In addition, the sequence of residues 215-232 of PLP has been shown to be the active domain required for secreted PLP (Yamada et al. J. Neurosci. 1999. 19: 2143-2151). Although Applicant describes

several potential possibilities of using the claimed polypeptides in treating different diseases (see p.32), Applicant fails to provide sufficient guidance on how to use the claimed polypeptides in treating the listed diseases since the causes of myelination disorders or neurodegenerative diseases are complex and no data were shown that these diseases could be treated by a single molecule. The state of the prior art is such that no treatment or administration was known to prevent or cure neurodegeneration or demyelination disorders caused by neurodegeneration and let alone treat/prevent all neurodegenerative diseases or demyelination disorders. The pathogenesis of most neurodegenerative diseases and demyelination disorders are multifactorial. For example, multiple sclerosis (MS) is characterized as an autoimmune disorder mainly affecting young adults and characterized by destruction of myelin in the central nervous system and its pathologic findings include demyelination throughout the white matter of the central nervous system. One of proposed potential mechanisms for MS is that MS is an autoimmune disease of TH-1 type cell mediated immune response against myelin sheath, which subsequently results in inflammation and degeneration in the nervous system. The pathology of MS is very heterogeneous and at least four different patterns of pathology in MS have been characterized. Patterns I and II can be shown close similarity in the animal model of experimental autoimmune encephalomyelitis (EAE), where the lesions are induced by autoreactive T cells and autoantibodies (see p. 375, first paragraph, 't Hart et al. Curr. Opin. Neurol. 2003. 16: 375-383). Although injection of MBP into mice has been shown to induce experimental allergic encephalomyelitis (EAE), which subsequently initiates a cascade of immune-mediate damages, the cause

of MS is still not established because the animal models for MS cannot truly reflect the pathogenic mechanisms of MS; i.e. each animal model only has partial clinical aspects and histopathology of MS. Applicant fails to provide sufficient guidance as to enable one of skill in the art to practice the full scope of the invention without undue experimentation since there is no evidence demonstrated that the claimed polypeptides could treat any neurodegenerative diseases in vivo. Therefore, in view of the necessity of experimentation, the limited working examples, the unpredictability of the art, and the lack of sufficient guidance in the specification and the lack of knowledge of function for each sequence, one of skill in the art would be required to perform undue experimentation in order to practice the claimed invention as it pertains to an isolated polypeptide comprising a fragment of PLP and the fragments having the sequence corresponding to all parts of PLP or all mutant sequences thereof.

Claims 1-2, and 41 are also rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

To provide adequate written description and evidence of possession of a claimed genus, the specification must provide sufficient distinguishing identifying characteristics of the genus. The factors to be considered include disclosure of complete or partial structure, physical and/or chemical properties, functional characteristics, structure/function correlation, methods of making the claimed product, or any

combination thereof. These claims are drawn to a genus of polypeptides that are fragments of wild type or mutant PLP. Applicant has not disclosed sufficient species for the broad genus of polypeptides with limited homology to PLP.

Claims 1-2, and 41 are directed to an isolated polypeptide that is a fragment of PLP having the sequence corresponding to a part of wild type PLP or a mutant sequence thereof and is encoded by an mRNA having an IRES and a pharmaceutical composition comprising the isolated polypeptide. Applicant recites a "fragment", a "native" PLP, "a part" and "a mutant sequence" in claim 1. Claims 2 and 41 depend from claim 1. The claims do not require any particular biological activity/conserved structure/distinguishing feature. Thus, the claims encompass a genus of polypeptides, a genus of fragments, a genus of native PLP and a genus of mutant sequences. . However, the instant specification fails to describe the entire genus of polypeptides, fragments, native PLP or mutant sequences that are encompassed by these claims.

In making a determination of whether the application complies with the written description requirement of 35 U.S.C. 112, first paragraph, it is necessary to understand what Applicant has possession of and what Applicant is claiming. From the specification, it is clear that Applicant is in possession of PLP (SEQ ID NO:2), DM20 (SEQ ID NO:4) and PIRP-M (SEQ ID NOs: 6 and 12). However, the claims are not limited to the polypeptides as set forth above. The claims also include fragments with sequences corresponding to all parts of PLP and mutant PLP, which could be any sequences. The specification only describes SEQ ID NOs: 2, 4, 6, 8, 12, 16 and 18 and fails to teach or describe any other related proteins with limited homology. In this case,

the only factor present in the claim is a partial structure in the form of a recitation of sequence similarity. Applicant fails to teach what native PLP are other than SEQ ID NO:2 and 4. Applicant also fails to teach what other fragments or mutant sequences are other than SEQs 6, 8, 12, 16 and 18. The instant specification fails to provide sufficient descriptive information, such as definitive structural or functional features of the claimed genera of polypeptides. While a single sequence is provided, there is merely a set of common properties: there is no description of the conserved regions which are critical to the function of the genus claimed. Applicant fails to provide sufficient guidance as to what other common structures/characteristics are required for the claimed polypeptides. Applicant also fails to teach what other amino acid sequences could/could not be included in order to preserve the activity/characteristics of the claimed polypeptides. There is no description of the sites at which variability may be tolerated and there is no specific information regarding the relation of structure to function. Structural features that could distinguish the polypeptides in the genus from other polypeptides are missing from the disclosure. Furthermore, the prior art does not provide compensatory structural or correlative teachings sufficient to enable one of skill to isolate and identify the polypeptides encompassed: there is no guidance in the art as to what the defining characteristics of an isolated polypeptide with limited homology to PLP might be. Since the common characteristics/features of the isolated polypeptides are unknown, a skilled artisan cannot contemplate the functional correlations of the genus with the claimed invention. Accordingly, in the absence of sufficient recitation of distinguishing

identifying characteristics, the specification does not provide adequate written description of the genus of proteins.

Vas-Cath Inc. v. Mahurkar, 19USPQ2d 1111, clearly states "applicant must convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession *of the invention*. The invention is, for purposes of the 'written description' inquiry, *whatever is now claimed.*" (See page 1117.) The specification does not "clearly allow persons of ordinary skill in the art to recognize that [he or she] invented what is claimed." (See *Vas-Cath* at page 1116). As discussed above, the skilled artisan cannot envision the detailed chemical structure of the encompassed genus of polypeptides, and therefore conception is not achieved until reduction to practice has occurred, regardless of the complexity or simplicity of the method of isolation. Adequate written description requires more than a mere statement that it is part of the invention and reference to a potential method of isolating it. The compound itself is required. See *Fiers v. Revel*, 25 USPQ2d 1601 at 1606 (CAFC 1993) and *Amgen Inc. v. Chugai Pharmaceutical Co. Ltd.*, 18 USPQ2d 1016.

One cannot describe what one has not conceived. See *Fiddes v. Baird*, 30 USPQ2d 1481 at 1483. In *Fiddes*, claims directed to mammalian FGF's were found to be unpatentable due to lack of written description for that broad class. The specification provided only the bovine sequence.

Therefore, an isolated polypeptide that is a fragment of PLP having the sequence corresponding to a part of wild type PLP or a mutant sequence thereof and is encoded by an mRNA having an IRES has not met the written description provision of 35 U.S.C.

§112, first paragraph. Applicant is reminded that *Vas-Cath* makes clear that the written description provision of 35 U.S.C. §112 is severable from its enablement provision (see page 1115).

Applicant is directed to the Guidelines for the Examination of Patent Applications Under the 35 U.S.C. 112, ¶ 1 "Written Description" Requirement, Federal Register, Vol. 66, No. 4, pages 1099-1111, Friday January 5, 2001.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1, 2, 7 and 41 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 1, 2 and 41 are indefinite because the recitations of "fragment", "a part", "mutant", "fusion partner peptide/polypeptide with a second amino acid sequence" as in claim 1. Claims 2 and 41 depend from claim 1. The claims are drawn to fragments having the sequences corresponding a part of wild type PLP or mutant sequences thereof. The disclosure fails to set forth the metes and bounds of what is encompassed within the definition of such fragments, mutants and fusion partner peptides/polypeptides and thus the claims are indefinite.

Claim Rejections - 35 USC § 102

Claims 1-4 and 41 are rejected under 35 U.S.C. 102(b) as anticipated by Stoffel et al. (Hoppe-Seyler's Z. Physiol. Chem. 1982. S. 1117-1131).

Stoffel et al. teach several proteolytic polypeptides from Proteolipid apoprotein (lipophilin) and DM-20 by different proteases and analyzing the sequences of these different proteolytic polypeptides (see p. 1117, abstract). Lipophilin is the same as PLP as described in the specification (see p.1). Stoffel et al. teach a PLP polypeptide with an amino acid sequence of the 72 amino acids of the C-terminal of PLP, which is the same amino acid sequence as the instant SEQ ID NO:6 (see p. 1117, abstract) because SEQ ID NO:6 contains 72 amino acids of the C-terminus of PLP (aa 205-276). It is noted that the instant product as recited in claim 1 is a product-by-process, which appears to be the same as, or an obvious variant of a product of the prior art. The recitation of "the fragment is encoded by an mRNA having an IRES" in claim 1 is considered as a different process, which does not generate a structural different product. Thus, the claim is unpatentable even though the prior art product was made by a different process.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-4, 7, 8 and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stoffel et al. (Hoppe-Seyler's Z. Physiol. Chem. 1982. S. 1117-1131 in view of Metz et al. (Somatic Cell and Mol. Genet. 1998. 24: 53-69), Cha et al. (Biotech. and Bioeng. 2000. 67: 555-574) and Pryor et al. (Protein Exp. And Purif. 1997. 10: 309-319).

Stoffel et al. teach as set forth above but fails to explicitly teach IRES and also fail to teach fusion proteins of GFP or His-tag as in claims 3, 7 and 8.
Metz et al. teach a vector containing one or two IRES sites and GFP generate a protein from different IRES sites (see p. 53, abstract; p. 55, Fig1). Cha et al. teach a GFP-fusion protein as a non-invasive quantitative marker to monitor the study protein (see p. 555, 2nd col. 1st paragraph). Cha et al. also teach a vector containing a His6-tag and GFP to generate a fusion protein of His-GFP (see p. 555, abstract). Pryor et al. teach proteins can be isolated by fusing the proteins to a His6-tag (see p. 309, abstract).
It would have been obvious to one of ordinary skill in the art at the time the instant invention was made to fuse the protein with GFP or His for monitoring the expression or location of the protein or purification of the protein. The person of ordinary skill in the art would have been motivated to do so because GFP and His6 have successfully been used in making a fusion protein for purification and quantitative purposes. One of ordinary skill in the art would have expected success in isolating a GFP or His6-tag protein containing the last 72-amino acid of the PLP.

Conclusion

NO CLAIM IS ALLOWED.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Wagstaff et al. Gene therapy. 1998. 5: 1566-1570.

Any inquiry of a general nature or relating to the status of this general application should be directed to the Group receptionist whose telephone number is (571) 272-1600.

Papers relating to this application may be submitted to Technology Center 1600, Group 1649 by facsimile transmission. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). Should applicant wish to FAX a response, the current FAX number for Group 1600 is (571) 273-8300.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chang-Yu Wang, Ph.D. whose telephone number is (571) 272-4521. The examiner can normally be reached on Monday-Thursday and every other Friday from 8:30 AM to 6:00 PM. If attempts to reach the examiner by

telephone are unsuccessful, the examiner's supervisor, Janet Andres, Ph.D., can be reached at (571) 272-0867.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CYW
January 23, 2007

OLGA N. CHERNYSHEV, PH.D.
PRIMARY EXAMINER